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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,782	10/16/2003	Tomohito Ota	023971-0323	7012
22428	7590	04/24/2006	EXAMINER	
FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			POULOS, SANDRA K	
			ART UNIT	PAPER NUMBER
			1714	

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/685,782	<b>Applicant(s)</b> OTA ET AL.	
	<b>Examiner</b> Sandra K. Poulos	<b>Art Unit</b> 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 7-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 7-11 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 2/27/06.

Applicant's election with traverse of the thermoplastic resin composition in the reply filed on 2/27/06 is acknowledged. However, it is noted that the applicant has not pointed to any errors in the restriction requirement other than discussing a potential rejoinder, thus there is no traversal as such. Hence, the traverse is not persuasive.

The requirement is still deemed proper and is therefore made FINAL.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Figure 4, numbers "12" and "13".

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be

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labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities:

Page 1, last line: It appears that there should not be an end parenthesis after molybdenum disulfide.

Page 6, description for Fig 1: The TFE is "provided with crosslink and active end group" by irradiation. The language is unclear as to whether "crosslink" and "active end group" is singular or plural.

Page 8, line 16: Hexafluoropropylene is spelled incorrectly.

Page 16, lines 19-20: There is an extra "suitable for".

Appropriate correction is required.

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The current title makes no mention of the fluororesin, which seems to be a major part of the invention.

### ***Claim Objections***

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5. Claims 1-6 objected to because of the following informalities:

Claims 1, 5, 6 recite "at least a part of carbon atoms forming part of a molecule chain" which is somewhat unclear. Amending to either "at least a part of **the** carbon atoms **that form** part of a molecule chain" or "at least a part of the carbon atoms of a molecule chain" would result in a clearer claim. Also applies to "another molecular chain" phrase.

Claims 2-4 refer back to the thermoplastic resin of claim 1 and therefore should refer to "The thermoplastic resin composition as claimed" rather than "A thermoplastic resin composition".

Claim 5 recites "A combination of thermoplastic resin composition" but should be "A combination of **a** thermoplastic resin composition".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

6. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 5, 6: The invention is rendered indefinite because the claim language fails to identify whether "crosslink" and "active end group" are plural or singular. For instance, in claim 1, "the fluoro resin including crosslink formed between" can be interpreted as "the fluoro resin including **a** crosslink between" or "the fluoro resin including

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crosslinks between". Whenever "crosslink" or "active end group" are disclosed, there is ambiguity as to whether they are plural or singular, however, it appears that it is singular.

Claim 5 is indefinite because although what is being claimed is a composition, there is disclosed "the thermoplastic resin composition being *used* in presence of the lubricating oil". It is unclear how it is being used.

Claim 6 is unclear because the phrase "the active end groups of the fluororesin is chemically bonded with *atom* forming part of the thermoplastic resin" wherein it is not known if atom is plural or singular.

Claims 2-4 are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon a rejected base claim.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1 and 2 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 7, 9, 12, 14, 15, 16, 19 of U.S. Patent No. 6,884,827. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the reasons set forth below.

The claims of US 6,884,827 discloses a seal ring comprising: fluororesin; metal powder; and modified fluororesin formed by irradiating an ionizing radiation in a range from 1 kGy to 10 MGy inclusive in a state of being heated up to a melting point thereof or higher under an inert gas atmosphere with an oxygen partial pressure of 1.33 kPa or less; and further comprising synthetic resin having a surface energy ranging from +0 N/cm to  $20 \times 10^{-5}$  N/cm inclusive of that of the operating oil.

The claims of US 6,884,827 do not disclose the amounts of the resins.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

The specification of US 6,884,827 discloses 10 vol% irradiated TFE, 70 vol% unmodified TFE, and 20 vol% polyamideimide as the synthetic resin (examples 1-2).

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Thus, the irradiated TFE is taken to be the “fluororesin” of the current claims, while the unmodified TFE is taken to be the “thermoplastic resin”. Although the current claims recite “a thermoplastic resin other than *the* fluororesin” since “the fluororesin” refers back to the irradiated one, a non-irradiated version would be chemically different and could therefore be considered as an “other” resin. The claim does not stipulate that the other resin should be “a thermoplastic resin other than a fluororesin”. From the vol%, it can be calculated that the unmodified TFE is approximately 64% by weight and the modified TFE is approximately 18% by weight, which is within the currently claimed range.

8. Claims 1 and 2 are directed to an invention not patentably distinct from claims 1, 2, 7, 9, 12, 14, 15, 16, 19 of commonly assigned US Patent No. 6,884,827. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 7 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned US Patent No. 6,884,827, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions



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were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being obvious over US 6,884,827.

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing

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that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

For an explanation of the rejection, see paragraph 7 above.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Kusano et al in US 6,465,575.

Kusano discloses a product having reduced friction and improved abrasion resistance that comprises: a fluoroplastic molded material containing a modified fluoroplastic prepared by applying ionizing radiation to a fluoroplastic (I) heated at the melting temperature or a higher temperature under an inert gas atmosphere having 10 torr (equal to 1.33 kPa) or less oxygen concentration within a range of irradiation doses of from 1 KGy to 10 MGy; and an unmodified fluoroplastic (col 1, lines 31-48). It is

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preferred that a ratio of incorporation of the modified fluoroplastic and the unmodified fluoroplastic ranges from 10 to 90% by weight of the former with respect to from 90 to 10% by weight of the latter (col 1, lines 31-48). Example 6 discloses the mixture of irradiated fluoroplastic (30% by weight) and non-modified fluoroplastic (60% by weight). The irradiated fluoroplastic has a particle diameter of about 20  $\mu\text{m}$  (col 3, lines 6-8). Although the current claims recite "a thermoplastic resin other than *the* fluororesin" since "the fluororesin" refers back to the irradiated one, a non-irradiated version would be chemically different and could therefore be considered as an "other" resin. The claim does not stipulate that the other resin should be "a thermoplastic resin other than a fluororesin".

Therefore, Kusano anticipates the cited claims.

10. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Seguchi et al in US 5,985,949.

Seguchi discloses a product having reduced friction and improved abrasion resistance comprising a formed resin containing at least one ionizing radiation irradiated fluorine-containing polymer (col 1, lines 36-53). The formed resin may include from 1 to 100 weight percent of the fluorine-containing polymer in the form of powder, and from 99 to 0 percent of a high molecule polymer which is not exposed to the ionizing radiation (col 1, lines 36-53). The fluorine-containing polymer is preferably exposed to the ionizing radiation for a total dose of from 1 KGy to 10 MGy in the absence of oxygen (a vacuum of less than 0.01 Torr), and more preferably it may be exposed to the

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ionizing radiation at a temperature not lower than the melting point of a starting fluorine-containing polymer (col 1, lines 36-53). The high molecule polymer may be non-modified fluoropolymers or thermoplastics such as polyamide, aromatic polyamide, and polyester (col 3, lines 5-15). Polyamide would meet the surface energy requirements currently claimed. The irradiated PTFE is pulverized into a fine powder with an average particle size of 20  $\mu\text{m}$  (examples 12, 13, 15, 16). In Example 12, the irradiated PTFE is present in an amount of 10 wt% and the non-irradiated polymer is present in 90 wt%.

Therefore, Seguchi anticipates the cited claims.

11. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,884,827.

The applied reference has a common assignee/inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

See the rejection in paragraph 7 above.

***Claim Rejections - 35 USC § 102/103***

Claim 6 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kusano et al in US 6,465,575.

It is noted that claim 6 is a product-by-process claim and therefore “even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

The discussion with respect to Kusano in paragraph 9 above is incorporated herein by reference.

The process limitations that Kusano lacks are kneading of the thermoplastic resin and fluororesin upon heating and applying a vacuum suction.

The process disclosed by Kusano is blending the admixtures with a mixer while heat treating and removing the volatile components (examples).

It is examiner's position that the compositions made from the Kusano process and the currently claimed process are structurally identical. Examiner asserts that mixing while heat treating is sufficiently similar to the claimed kneading upon heating; further, Kusano discloses that the high volatile components are removed, which the claimed vacuum suctioning would also perform. Therefore, absence evidence to the

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contrary, the composition disclosed by Kusano is the same as claimed composition, despite apparent differences in the process limitations.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seguchi et al in US 5,985,949 as applied to claims 1-4 above, and further in view of JP 63/179965 (wherein the abstract is referred to hereafter).

The discussion with respect to Seguchi in paragraph 10 above is incorporated herein by reference.

Seguchi does not disclose the addition of a lubricating oil.

JP '965 discloses a composition for a sliding material that contains a thermoplastic resin and PTFE fluororesin that are melt mixed and kneaded together. Lubricant oil is incorporated in the composition in an amount of 3 to 15 wt%. The composition is useful for preparing parts of motorcars and has good molding property and a molding prepared from it has good sliding property.

It would have been obvious to one of ordinary skill in the art to incorporate lubricating oil into the thermoplastic/PTFE composition disclosed by Seguchi because the lubricating oil enhances the sliding properties of the composition which is beneficial in view of the fact that Seguchi desires a composition with reduced friction.

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Machine translation of JP 2000-186162 (IDS reference).

JP 2003-049950 discloses a seal material with good lubrication that contains irradiated fluororesin.

JP 2001-254839 discloses oil seat element comprising irradiated fluororesin.

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Yamamoto et al in US 6,552,099 discloses a fluoro-resin heated at a temperature at or above the melting point of the resin is exposed in an inert gas atmosphere having an oxygen concentration of not more than 10 Torr (equal to 1.33 kPa) to an ionizing radiation at a radiation dose of 0.1 kGy to 10 MGy to prepare a crosslinked fluoro-resin (abstract). The crosslinked fluoro-resin is exposed to an ionizing radiation at a radiation dose of 10 kGy to 5 MGy, and is then brought into contact with a functional group-containing organic compound to cause a graft reaction (abstract; col 2, lines 14-35). Yamamoto discloses that other polymer can be incorporated with the fluoro-resin such as thermoplastic resins such as polyethylene and polypropylene (col 5, lines 39-42).

International Search Report for PCT/JP2004/014700.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra K. Poulos whose telephone number is (571) 272-6428. The examiner can normally be reached on M-F 7:30-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*SKP*

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